

REMARKS

Claims 1-14 are rejected under 35 U.S.C. 112. Claims 1 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsao et al. (6165279). Claims 1-2 and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (6273099).
5 Claims 2-3 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Tsao et al. (6165279) in view of applicant' admission of the prior art. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (6273099) in view of applicant' admission of the prior art. Claim 4 is rejected under 35 U.S.C. 103(a) as
10 being unpatentable over Chang et al. (6273099). Claims 1-2 and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (6652666) in view of Chang et al. (6273099).

1. Rejection of Claims 1-14 under 35 U.S.C. 112:
15 The Examiner indicates that Claims 1 and 7 are indefinite because it is unclear that one of ordinary skill in the art would consider as a "naked" metal structure. In reply to this, the term "naked" has been replaced with "exposed", which can be supported by paragraph [0015] of the specification of the present invention. No new matter is introduced.

20 The Examiner further indicates that Claim 1 is indefinite because it is unclear what is meant by the term "hot". To overcome this, the limitation of Claim 4 has been merged into Claim 1, and the limitation of Claim 10 has been merged into Claim 7. The "hot" QDR process cited in Claim 1 has been confined to a range of 70°C~80°C.

25 In re Claim 3, the typo has been corrected as set forth in the above AMENDMENT section. The term "basic" has been replaced with "acidic".

In re Claims 5 and 11, the Examiner alleges that they are indefinite because it is unclear what is meant by an amine-based basic solution. The Applicants submit that the term "amine-based", "amine-based chemistry", "amine-based solvent", or "amine-based solution" can be recognized by those skilled in the art. For example, 30 please see U.S. Pat. No. 6495472 and U.S. Pat. No. 6024106, which are commonly owned by the same assignee of the present application.

In light of the above, the Applicants believe that the 112 problems have been

overcome by this amendment. Reconsideration of the amended Claims is therefore respectfully requested.

2. Rejection of Claim 1 under 102(b):

5 Claim 1 was rejected under 35 U.S.C. 102(b), for reasons of record that can be found on page 3 in the Office action identified above, which is Part of Paper No./Mail Date 05242004.

To overcome this 102 rejection, Claim 1 has been amended. The limitations in Claims 2, 4, and 6 have been added into Claim 1. Claims 2, 4, and 6 are accordingly 10 canceled. No new matter is introduced. Reconsideration of the amended Claim 1 is therefore respectfully requested.

The Applicants believe that none of the prior art records teach a post-metal-plasma-etching wafer cleaning process comprising a hot quick-dump-rinse (hot QDR) process comprising a step of injecting heated deionized (DI) water into the 15 second cleaning vessel from bottom of the second cleaning vessel; wherein the DI water injected into the second cleaning vessel is heated to a temperature of about 70°C to 80°C; and wherein the hot QDR process is carried out without using a scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water as limited by Claim 1. Chang et al. teach the use of spray ports 22 at the top of 20 the tank to spray liquid into the tank, as shown in Fig.2. Ma et al. do not demonstrate scrubber in figures, however, as known by those skilled in the art, the scrubber is normally installed over the QDR tank. Ma et al. teach nothing above the hot QDR process carried out without using a scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water as limited by amended Claim 1.

25 As Claims 3 and 5 are dependent upon Claim 1, they should be allowable if Claim 1 is allowed. Reconsideration of Claims 3 and 5 is therefore politely requested.

3. Rejection of Claim 1 under 103(a):

Claim 1 was rejected under 35 U.S.C. 103(a), for reasons of record that can be 30 found on page 6 in the Office action identified above, which is Part of Paper No./Mail Date 05242004.

The Applicants believe that the cited prior art references fail to teach that the hot

QDR process carried out without using a scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water as limited by amended Claim 1. As known by those skilled in the art, the scrubber (or spray port) is normally installed at the top of the QDR tank. Neither Ma et al. nor Chang et al. provides the motivation and benefits to shut down the scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water.

Reconsideration of the amended Claim 1 is therefore respectfully requested. As Claims 3 and 5 are dependent upon Claim 1, they should be allowable if Claim 1 is allowed. Reconsideration of Claims 3 and 5 is politely requested.

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4. Rejection of Claim 7 under 103(a):

Claim 7 was rejected under 35 U.S.C. 103(a), for reasons of record that can be found on pages 6-7 in the Office action identified above, which is Part of Paper No./Mail Date 05242004.

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To overcome this rejection, Claim 7 has been amended. The limitation in Claims 8-10, and 13 have been added into Claim 7. Claims 8-10, and 13 are accordingly canceled. No new matter is introduced. Reconsideration of the once-amended claim 7 is therefore respectfully requested.

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The Applicants believe that the cited prior art references fail to teach that the hot QDR process carried out without using a scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water as limited by amended Claim 7. As known by those skilled in the art, the scrubber (or spray port) is normally installed at the top of the QDR tank. Neither Ma et al. nor Chang et al. provides the motivation and benefits to shut down the scrubber positioned over the second cleaning vessel for preventing pumping air into the DI water.

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Reconsideration of the amended Claim 7 is therefore respectfully requested. As Claims 11-12 and 14 are dependent upon Claim 7, they should be allowable if Claim 7 is allowed. Reconsideration of Claims 11-12 and 14 is politely requested.

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Sincerely yours,

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